

# BRAUSCH ENVIRONMENTAL, LLC

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US EPA RECORDS CENTER REGION 5



501147

September 23, 2010

Mr. James J. Hahnenberg  
Remedial Project Manager  
U.S. Environmental Protection Agency, Region 5  
77 West Jackson Boulevard, SR-6J  
Chicago, IL 60604-3590

**Re: Technical Memorandum  
City Water Connections and Private Well Abandonment  
North Bronson Industrial Area, Operable Unit 1, Bronson, Michigan**

Dear Mr. Hahnenberg:

This Technical Memorandum is submitted to the U.S. Environmental Protection Agency (USEPA), Region 5, to document the work performed on behalf of the North Bronson Industrial Area (NBIA) Operable Unit 1 Potentially Responsible Parties Group (the Group) to connect properties to the municipal water supply system and abandon private wells at locations affected by the proposed City of Bronson groundwater use restriction ordinance. This work has been conducted in accordance with the requirements of the Consent Decree in the case of *United States v. Bronson Plating Company, et al.* (Civil Action No. 1:99-CV-490, W.D. of Michigan) regarding Remedial Design and Remedial Action for Operable Unit 1 at the NBIA Site (the Consent Decree).

## BACKGROUND

As defined in the June 1998 Record of Decision (ROD) issued by the Michigan Department of Environmental Quality (MDEQ), now the Michigan Department of Natural Resources and Environment (MDNRE),<sup>1</sup> and USEPA, the selected remedy for NBIA Operable Unit 1 includes enforceable restrictions on future groundwater use where needed to reduce potential exposure to impacted Site groundwater. Paragraph 29 of the Consent Decree specifies that the Group cooperate with USEPA to secure governmental restrictions on groundwater where determined to be necessary by USEPA.

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<sup>1</sup> For simplicity in this report, the acronym MDNRE is used to refer to both the current and predecessor agencies, except in citations to specific guidance documents or reports.

To implement the ROD requirements and advance the implementation of the institutional controls specified in the Consent Decree, the Group has worked closely with the City of Bronson to develop a proposed ordinance restricting groundwater use in a portion of the City. A copy of the proposed ordinance is provided as Attachment A. The proposed ordinance presented in Attachment A has been revised from prior drafts to respond to comments received from and reviewed with MDNRE.

The proposed City ordinance defines specific limitations for private well use within designated Restricted and Buffer Zones. The limits of these zones were defined by evaluations conducted by Arcadis G&M of Michigan, LLC (Arcadis) and presented in a Technical Memorandum submitted to USEPA on February 16, 2006. Figure 1 shows the extent of the Restricted and Buffer Zones, including the slight adjustment made in early 2009 in response to requests by certain property owners (see discussion below). Overlain on this figure is a generalized representation of the extent of chlorinated volatile organic compounds (VOCs) in groundwater at the NBIA Site. This overlay was previously submitted to USEPA on December 19, 2006, but has been updated based on more recent groundwater data from the Groundwater Delineation Study (O'Brien & Gere, Inc. [O'Brien & Gere], 2010).<sup>2</sup>

The proposed ordinance addresses potentially affected properties within the City of Bronson. As needed, potentially affected properties located outside the City limits in Bronson Township will be addressed by environmental restrictive covenants placed on specific properties.

## **POTENTIALLY AFFECTED PROPERTIES**

On behalf of the Group, Arcadis conducted a comprehensive investigation to identify private wells located within the proposed Restricted and Buffer Zones. Within these zones, properties served by private wells would need to be connected to the City water supply system and their private wells abandoned to comply with the City ordinance.<sup>3</sup>

As described in its February 16, 2006 Technical Memorandum, Arcadis' investigation of private wells included reviews of the following available State and local records:

- Branch-Hillsdale-St. Joseph Community Health Agency (CHA) well records,
- Well log information from the MDNRE on-line database, and

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<sup>2</sup> Figure 1 was prepared using groundwater quality data from various sets of wells finished in the upper aquifer and sampled at different times and does not present the results from any single synoptic groundwater monitoring event using consistent sampling and analytical methods. Accordingly, the presentation of the limits of impacted groundwater made in Figure 1 is for general information only.

<sup>3</sup> The proposed City ordinance prohibits all private wells within the Restricted Zone. Wells finished in the deeper aquifer are permitted within the Buffer Zone, provided that such wells are properly cased through the shallow aquifer (see Attachment A).

- City of Bronson water department billing records to identify occupied properties that: 1) did not receive City water bills; 2) received combined City sewage/water bills for which there were no charges for water use; or 3) received City water bills but for which water usage was below normal, potentially indicating use of private wells for irrigation or other purposes.

Arcadis also sent a well survey questionnaire to property owners and occupants in the proposed Restricted and Buffer Zones and, with the assistance of the City, conducted a follow-up door-to-door survey for those who did not respond to the mail-in questionnaire.

Table 1 lists the potentially affected properties identified by the Arcadis (2006) investigation. Also included in Table 1 are two properties located in the Restricted Zone where Arcadis (2006) could not evaluate the presence of a private well because no response was received to the mail-in questionnaire and no contact was made during the follow-up door-to-door survey.

Based on the results of the Arcadis investigation, the Group and City jointly sent letters to potentially affected properties in January 2009. The Group offered to arrange and pay for the connection to City water and private well abandonment at no cost. The property owner would be responsible for future water bills from the City. Meetings were then held with affected property owners, with follow-up meetings or telephone discussions with those owners who could not be contacted in conjunction with the January 2009 meetings. Through these efforts, direct discussions were held with all of the potentially affected property owners, except for the owner at (b) (6).

From these meetings and discussions, all of those contacted agreed to connect to the City water system and have their private well permanently abandoned, except for the owners of (b) (6).

As shown in Figure 1, these three addresses on (b) (6) are located in the southwest corner of the Buffer Zone as defined by the Arcadis (2006) analysis. This area is far removed from locations where chlorinated VOC impacts have been identified in the shallow aquifer, and available sampling data from wells associated with these properties have shown no detectable VOCs.<sup>5</sup> Pursuant to the discussions with USEPA at the March 17, 2009 project meeting, the limits of the previously proposed Buffer Zone were adjusted to exclude the addresses on (b) (6).

By adjusting the limits as described, the property at (b) (6) was also excluded from the Buffer Zone. This property owner, however, requested to be connected to City water nonetheless, and the Group agreed to make that connection and abandon the

<sup>4</sup> As indicated in Table 1, it was also learned from these discussions that (b) (6) had already been connected to City water shortly after the Arcadis February 2006 report and that private wells at that location had been abandoned.

<sup>5</sup> The CHA has sampled the private well at (b) (6), among others, on an annual basis from at least 2007 through 2010. In addition, at the request of the owner, the Group sampled the private well at (b) (6) in January 2009. Analysis by USEPA Method 524.2 has shown no detectable VOCs in any of these samples.

private well at this property. Also, although initially opposed, the owner of the property at (b) (6) subsequently requested to be connected to City water and allow their well to be abandoned. The Group complied with this request.

The Group entered into license agreements with each of the affected property owners allowing the Group to proceed with the needed water connections and well abandonment. Copies of these agreements are provided in Attachment B.<sup>6</sup>

The owner of the property at (b) (6) did not reply to the 2006 well survey, did not respond to any of the multiple 2009 mailings from the City and Group, and could not be contacted in person regarding the possible location of a private well at this property. Available information indicates, however, that a private well is not located at this property. According to City personnel familiar with the property, (b) (6) was a converted workshop that had previously been associated with the property next door. A small-diameter pipeline from the adjacent property supplied water to the workshop, and there is no indication that a well was ever associated with this workshop. When the structure at 120 Mill Street was converted to a residence, this location was connected to City water.<sup>7</sup>

## CITY WATER CONNECTIONS

Connecting the properties to the water supply system involved a collaborative effort between the City and O'Brien & Gere, who was retained by the Group as its engineering consultant and prime contractor. Because of special circumstances, two of the City water connections (b) (6) were addressed individually.

O'Brien & Gere prepared a bid package for the new water connections to facilitate bid procurement and evaluation. The bid package included design drawings that detailed the scope of work and City of Bronson requirements, as follows:

- Site Plan showing lot and block of each location;
- Typical trench or horizontal boring detail;
- Typical house (basement) penetration detail;
- Typical house connection detail; and
- Typical "tap" connection detail.

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<sup>6</sup> Based on an understanding with the current owner, the well abandonment at (b) (6) Street was conducted pursuant to the license agreement entered with the former owner who sold the property in December 2009.

<sup>7</sup> Also of note, on June 30, 2009, while attempting to personally contact the owner of the (b) (6) property (who was not in), the Bronson City Manager and NBIA Group Project Coordinator observed that the garden at the property was being watered from an outdoor spigot on a timer. The outdoor water meter was read at approximate one hour intervals and, from these readings, it was apparent that City water was being used to water the garden. The inference drawn from this observation is that a private well is not present at this property. If one were present, it would be much more likely that well water would be used for such irrigation purposes.



The bid package also contained specifications regarding the type of materials and services required to complete the water connections. A copy of the bid package prepared by O'Brien & Gere is provided as Attachment C. Through a competitive bidding process, O'Brien & Gere selected R&M Service of Coldwater, Michigan (R&M Service) as its subcontractor for the plumbing work associated with the City water connections.

O'Brien & Gere provided contractor oversight during the water connections. Oversight included a project kick-off meeting with R&M Service and City of Bronson Department of Public Works (DPW), and periodic observation of the activities during the duration of the project. In addition, daily communication with R&M Service and periodic communication with the City were conducted when O'Brien & Gere personnel were not on site to observe the site activities first-hand.

The City of Bronson DPW made the taps to the City water mains, provided trenchless boring ("mole") services for extending piping from the water tap through the basement wall, inspected the plumbing, and provided a water meter at each residence. R&M Service excavated pits, as directed by the City as needed for access for trenchless boring or, in those cases where connection piping was not installed by trenchless boring, excavated a trench and installed the piping from the water tap to the basement wall. R&M Service installed the required indoor piping and fittings to connect plumbing to City water in accordance with the project design drawings and specifications, and disconnected the existing in-home plumbing systems from the private wells after the City inspected and approved the new connection. These City water connections were completed between April 23 and May 10, 2010 as listed in Table 1.

In order to close on a sale of the property, the former owner of the property at (b) (6) (b) (6) requested to be connected to City water in late 2009. To accommodate this request, the Group entered into an arrangement whereby the City made the tap connection, installed the water line through the basement wall using trenchless boring, and provided the water meter. The property owner retained a plumbing contractor to make the indoor plumbing modifications to connect to the line installed by the City and disconnect from the private well. The Group agreed to reimburse the owner for the cost of his plumbing contractor (*i.e.*, Wil-Mac Sales and Services, Inc., of Coldwater, Michigan). The plumbing work at (b) (6) (b) (6) completed by D&W Maintenance, a company owned by one of the owners of this property. Again, the Group reimbursed the property owner for costs incurred. The City inspected the completed plumbing work conducted at (b) (6) and (b) (6), but O'Brien & Gere did not provide oversight of these activities.

## **WELL ABANDONMENT**

To initiate well abandonment, O'Brien & Gere contacted the MDNRE Water Bureau, Kalamazoo District Office, and the CHA and obtained approval for the abandonment of the private wells by grouting the wells with neat cement. Well abandonment via grouting with

neat cement through a tremie pipe placed at the bottom of the well is specified in the MDNRE Water Bureau Abandoned Well Plugging Rules Summary, R 325.1664 (b) and (c) (Rule 164 (b) and (c)). O'Brien & Gere also obtained approval to allow pressure grouting of a well with neat cement grout where the wellhead was not accessible and a tremie pipe could not be extended to the bottom well.

O'Brien & Gere retained Stearns Drilling Company (Stearns) as its subcontractor for well abandonment. Stearns has registered water well drillers on staff, which is a requirement under the licensing and documentation rules of the MDNRE Part 127, Michigan Water Well Construction and Pump Installation Code, 1978 PA 368, as amended (Act 368).

O'Brien & Gere coordinated with Stearns and each property owner to abandon the 10 residential wells once the final inspection and approval of the new water connections was completed and verified (Table 1). O'Brien & Gere oversaw the well abandonment activities, which took place between June 10 and August 11, 2010. The extended schedule resulted from the need to accommodate the availability of the property owners.

To abandon the wells, Stearns first de-energized the pump, and then accessed (*i.e.*, disconnected or cut piping away from) the wellhead and removed obstructions within the wells (*i.e.*, drop pipe or foot valve, if present). Next, the total depth of the well was measured and recorded. Stearns then placed a tremie pipe to the bottom of the well, prepared a neat cement grout mixture, and pumped through the tremie pipe to grout the well from the bottom upward. Excess water and grout pushed out of the well were collected with a wet/dry vacuum. The well casing was then cut flush with the basement floor and capped with concrete. Stearns removed and disposed of old equipment and waste materials (*e.g.*, piping, pumps, expansion tanks, and excess grout) generated during the abandonment process, unless the resident requested to keep the pump or other equipment.

The wellhead of the well at (b) (6) was not located in the basement of this residence and was apparently buried outside the basement wall. Because the wellhead was not accessible and a tremie pipe could not be extended to the bottom of the well, the well was abandoned by pressure grouting with neat cement from the pipe that protruded from the basement wall.<sup>8</sup> Confined space entry techniques were employed during the abandonment of the well at (b) (6) because the well vault beneath the porch at this location was greater than 5 feet deep. In addition, O'Brien & Gere confirmed that the wells (*i.e.*, two 1.5-inch diameter hand-driven wells) located at (b) (6) had been abandoned by evidence of cement about a foot below the top of casing of the wells, which were subsequently cut flush with the concrete wall they protruded.

O'Brien & Gere worked with Stearns to complete, electronically sign, and submit the required Abandonment Water Well and Pump Record (*i.e.*, well abandonment logs) using the on-line filing system and MDNRE Form EPQ 2044C to the MDNRE and CHA. Copies of the well abandonment logs are provided as Attachment D. The filed forms were electronically signed by the Stearns certified well driller.

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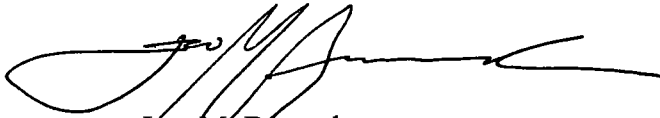
<sup>8</sup> This variance was specifically approved by MDNRE and CHA.

Mr. James J. Hahnenberg  
September 23, 2010  
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As described in this report, the Group has, pursuant to Paragraph 29 of the Consent Decree, completed the tasks needed for USEPA to secure governmental restrictions on potentially affected groundwater with the City of Bronson. The institutional controls represented by the proposed ordinance are protective of public health, and the Group requests that USEPA work expeditiously with the City to enact the proposed ordinance.

We trust that this submittal satisfies your requirements at this time. If you have questions regarding this technical memorandum or related project matters, please do not hesitate to contact me.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Leo M. Brausch', with a long horizontal flourish extending to the right.

Leo M. Brausch  
Project Coordinator

LMB:

**Attachments:**

Table 1	Summary of City Water Connections and Private Well Abandonment
Figure 1	Site Map Showing Restricted and Buffer Zones and Private Well Locations
Attachment A	Proposed City of Bronson Groundwater Restriction Ordinance
Attachment B	Consent to Access Forms
Attachment C	Bid Package for City Water Connections, Design Drawings and Specifications
Attachment D	Well Abandonment Logs

cc:

Deborah D. Larsen, MDNRE  
Charles W. Graff, MDNRE

cc (via email):

NBIA Operable Unit 1 PRP Group Legal Committee  
NBIA Operable Unit 1 PRP Group Technical Committee  
City of Bronson, Office of the City Manager  
John V. Byl, Esquire, Counsel for the City of Bronson

## REFERENCES

- Arcadis, 2006. *North Bronson Industrial Area Operational Unit 1 – Well Restriction Ordinance Memorandum – Summary of Findings*. February 16.
- MDEQ and USEPA, 1998. *Declaration, Selected Remedial Alternative for the North Bronson Industrial Site, Operable Unit 1, City of Bronson, Branch County, Michigan*.
- O'Brien & Gere, 2010. *Groundwater Delineation Study Report, North Bronson Industrial Area. Operable Unit 1, Bronson, Michigan*. August 13.

## TABLE

**Table 1**  
**Summary of City Well Connections and Private Well Abandonment**

Zone	Street Address	Tax Parcel No.	City Water Connection	Well Abandonment	Comments
Restricted Zone	(b) (6)		Completed by former owner in Mar 2006	Completed - wells previously closed	Closed wells inspected by O'Brien & Gere, Aug 2010.
			Completed by former owner in Dec 2009	Completed Aug 2010	City water connection completed under separate agreement with Group due to timing of property sale. City provided services and inspected and approved connection.
			Connected by owner prior to 2006	--	No response to 2006 survey. Results of investigation indicate no private well present at this property.
			Completed May 2010	Completed Jun 2010	No response to 2006 survey. Well confirmed by inspection, Jan 2009.
			Completed May 2010	Completed Aug 2010	
			Completed Apr 2010	Completed Jun 2010	
Buffer Zone	(b) (6)		Completed Apr 2010	Completed Jun 2010	
			Completed Apr 2010	Completed Jun 2010	
			Completed Apr 2010	Completed Jun 2010	
			Completed Apr 2010	Completed Jun 2010	



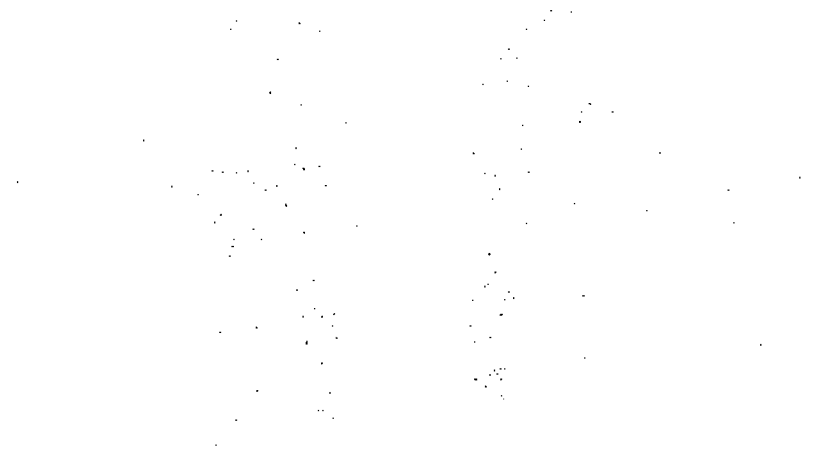
**Table 1**  
**Summary of City Well Connections and Private Well Abandonment**

Zone	Street Address	Tax Parcel No.	City Water Connection	Well Abandonment	Comments
Outside Adjusted Buffer Zone	(b) (6)		--	--	Owner requested not to be connected to City water.
			--	--	Owner requested not to be connected to City water.
			Completed by owner Jun 2010	Completed Jun 2010	Completed connection at owner's' request. Connection completed under separate agreement with Group. City provided services and inspected and approved connection.
			Completed May 2010	Completed May 2010	Completed connection at owner's request.

Notes:

1. For locations of properties and limits of zones, see Figure 1.
2. All addresses are Bronson, MI 49028.
3. Tax parcel numbers are abbreviated. Full Sidwell parcel numbers are of the form (b) (6)













**FIGURE**

(b) (6)

FIGURE 1



**LEGEND**

-  FORMER PRIVATE WATER WELL LOCATION NOW CONNECTED TO CITY WATER AND WELL ABANDONED.
-  PRIVATE WATER WELL LOCATION (NOT ABANDONED).
-  LOCATION OF POSSIBLE PRIVATE WATER WELL. FURTHER INVESTIGATION CONCLUDED NO WELL PRESENT.
-  TAX PARCEL ID NUMBER (ABBREVIATED).
-  LIMITS OF RESTRICTED ZONE
-  LIMITS OF BUFFER ZONE
-  ORIGINAL (2006 PROPOSED) LIMITS OF BUFFER ZONE. REFINED IN 2009.
-  APPROXIMATE EXTENT OF CHLORINATED VOCs IN GROUNDWATER. (SEE NOTES)

**NOTES:**

**1. BASE MAP**

ADAPTED FROM ARCADIS OF MICHIGAN, LLC DRAWING ENTITLED "POTABLE WELL LAYOUT MAP, OPERABLE UNIT 1, NORTH BRONSON INDUSTRIAL AREA SITE, BRONSON MICHIGAN" PROJECT NO. SFD02075.0002, DATED FEBRUARY 16, 2006.

AND ALSO:

ADAPTED FROM HALEY & ALDRICH DRAWING ENTITLED "RESTRICTED ZONE AND BUFFER ZONE FOR WELL RESTRICTION ORDINANCE" DRAWING ID: '27089-100-0001-VOC-EXTENT-IN-GW-HAYLEY AND ALDRICH.DWG', DATED MARCH 2009.

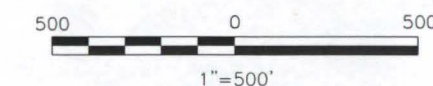
**2. CHLORINATED VOCs**

EXTENT OF CHLORINATED VOCs IN GROUNDWATER TAKEN FROM FROM A DRAWING COMPILED BY HALEY & ALDRICH, INC. ON BEHALF OF THE NBIA OPERABLE UNIT 1 GROUP AND SUBMITTED TO THE USEPA IN DECEMBER 2006 ("EXTENT OF VOCs IN GROUNDWATER, NORTH BRONSON INDUSTRIAL AREA, BRONSON, MICHIGAN") AND UPDATED TO REFLECT DATA FROM THE GROUNDWATER DELINEATION STUDY CONDUCTED BY O'BRIEN & GERE ENGINEERS, INC. IN 2010.

THIS FIGURE WAS PREPARED USING GROUNDWATER QUALITY DATA FROM VARIOUS SETS OF WELLS FINISHED IN THE UPPER AQUIFER AND SAMPLED AT DIFFERENT TIMES AND DOES NOT PRESENT THE RESULTS FROM ANY SINGLE SYNOPSIS GROUNDWATER MONITORING EVENT USING CONSISTENT SAMPLING AND ANALYTICAL METHODS. ACCORDINGLY, THE PRESENTATION OF THE LIMITS OF IMPACTED GROUNDWATER IS FOR GENERAL INFORMATION ONLY.

**NORTH BRONSON  
INDUSTRIAL AREA  
BRONSON, MICHIGAN**

**SITE MAP SHOWING  
RESTRICTED AND BUFFER  
ZONES WITH PRIVATE  
WELL LOCATIONS**



12716-41845.024  
AUGUST 2010



**O'BRIEN & GERE**

2009 © O'Brien & Gere Engineers, Inc.

**ATTACHMENT A**  
**PROPOSED CITY OF BRONSON**  
**GROUNDWATER RESTRICTION ORDINANCE**

**CITY OF BRONSON, MICHIGAN**  
**ORDINANCE NUMBER # \_\_\_\_\_**

AN ORDINANCE TO PROVIDE FOR THE REGULATION AND RESTRICTION OF GROUNDWATER WELLS IN CERTAIN AREAS OF THE CITY OF BRONSON. THE PURPOSE OF THIS ORDINANCE IS TO PROTECT THE HEALTH, SAFETY, AND WELFARE OF THE CITIZENS OF THE CITY OF BRONSON.

THE CITY OF BRONSON ORDAINS:

SECTION 1. DEFINITIONS. For the purposes of this Ordinance, the words and phrases listed below shall have the following meanings:

A. "Well" means an opening in the surface of the earth for the purpose of removing water through nonmechanical or mechanical means.

B. "Restricted Zone" shall mean the area legally described as such on Exhibit A. A scaled map illustrating the Restricted Zone is attached as Exhibit B.

C. "Buffer Zone" shall mean the area legally described as such on Exhibit A. A map illustrating the Buffer Zone is attached as Exhibit B.

D. "Glacial Till Aquitard Unit" shall mean that stratigraphic unit depicted on the geologic cross section attached as Exhibit C, which is described in Well boring logs as a gray colored clay rich unit and located at elevations ranging, generally, between 850 to 870 feet above mean sea level.

E. "Shallow Aquifer" shall mean any water-bearing stratigraphic unit located: (i) above the Glacial Till Aquitard Unit; and (ii) within the Restricted and Buffer Zone areas.

F. "Lower Aquifer" shall mean any water-bearing stratigraphic unit located: (i) below the Glacial Till Aquitard Unit; and (ii) within the Restricted and Buffer Zone areas.

SECTION 2. PROHIBITIONS.

A. After the effective date of this ordinance, except as provided in Section 3, no person or legal entity shall install or use or allow, permit, or otherwise provide for the installation or utilization of a Well on any property within the Restricted Zone on which that person or legal entity has an ownership interest, or lessee or tenant interest, or control. Property within the Restricted Zone shall be serviced only by public water supply.

B. After the effective date of this ordinance, except as provided in Section 3, no person or legal entity shall install or use or allow, permit, or otherwise provide for the installation or utilization of a Well on any property within the Buffer Zone on which that person or legal entity has an ownership interest, or lessee or tenant interest, or control, which Well draws its water from the Shallow Aquifer. Installation and use of Wells located within the

Buffer Zone that draw all of their water from the Lower Aquifer are permitted and are not restricted by this ordinance, so long as Well construction methods are used ensuring that no cross contamination between the shallow and lower aquifer can occur within the bore hole. Except as otherwise provided for in this Section, property within the Buffer Zone shall be serviced only by public water supply.

C. After the effective date of this Ordinance, in addition to a complete prohibition on the installation and operation of Wells within the Restricted Zone, no Well shall be installed or operated anywhere within the Buffer Zone, which Well draws its water from the Lower Aquifer, if its operation would render the controls intended by this Ordinance ineffective. Before the City Council takes action to enforce this subsection, the City Council shall provide the owner of the property with notice and an opportunity to be heard.

D. After the effective date of this Ordinance, consistent with the requirements of Section 5, the City Council may take action to amend this Ordinance to add or remove properties to or from the Restricted Zone or Buffer Zone, if it is determined that such action is necessary to maintain the effectiveness of the controls intended by this Ordinance. Before taking such action, the City Council shall provide the owner of the property with notice and an opportunity to be heard.

### SECTION 3. EXCEPTIONS.

A. Construction dewatering Wells. Wells in the Restricted and Buffer Zones used for construction dewatering are not prohibited by this ordinance, provided that the water generated by that activity is properly handled and disposed in compliance with all applicable laws and regulations. Any exacerbation of contamination caused by the use of construction dewatering Wells under this exception shall be considered the responsibility of the person operating the dewatering Well, as provided in part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended ("Part 201").

B. Groundwater monitoring and remediation Wells. Wells in the Restricted and Buffer Zones used for groundwater monitoring and/or remediation as part of response activity under Part 201 or the Comprehensive Environmental Response, Compensation, and Liability Act are not prohibited by this ordinance.

C. Certain industrial use Wells. Wells in the Restricted and Buffer Zone which draw all of their water from the Lower Aquifer and which are used to produce industrial cooling or process water, or to service heat pumps are allowed if already in place as of the effective date of this ordinance or if developed with the approval of the City Council. Any such Wells are limited to non-potable use and must include clear labeling on the plumbing identifying the use as non-potable only. Potable water to the industrial facility must be supplied by the City water system using separate plumbing.

SECTION 4. PENALTY. Any person or legal entity who shall violate any provision of this ordinance shall be deemed guilty of a misdemeanor offense punishable by imprisonment for not more than 90 days or by fine of not more than \$500 or both such fine and imprisonment in the discretion of the Court. The City of Bronson Police Department, the Branch-Hillsdale-St.

Joseph District Health Department, and the Branch County Prosecutor's Office have authority to enforce this ordinance.

In addition, the City may seek an order from a court of appropriate jurisdiction to restrain any person from violating this ordinance, including the collection of costs and attorney fees associated with such enforcement action. Any Well in violation of this ordinance shall also be declared and deemed a nuisance, subject to abatement, and shall be immediately taken out of service and lawfully abandoned consistent with all applicable state and local regulations. Any person found to be in violation is subject to being ordered by a court of appropriate jurisdiction to properly and lawfully remove or abandon the Well.

**SECTION 5. NOTIFICATION OF INTENT TO AMEND OR REPEAL.** At least thirty (30) days prior to any amendment or repeal in whole or in part of this ordinance, the City of Bronson shall notify the Michigan Department of Natural Resources and Environment, or its successor agency, by registered mail addressed to the Director of such Agency, of its intent to so act.

**SECTION 6. SEPARABILITY.** If any article, section, subsection, sentence, clause, phrase or portion of this Ordinance is held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of remaining portions of the Ordinance, it being the intent of the City of Bronson that this Ordinance shall be fully severable. The City of Bronson shall promptly notify the Michigan Department of Natural Resources and Environment upon the occurrence of any event described in this section.

**SECTION 7. CONFLICT WITH OTHER ORDINANCES.** All ordinances or parts of ordinances in conflict with any of the provisions of this Ordinance are hereby repealed.

**SECTION 8. EFFECTIVE DATE.** This Ordinance shall be in full force and effect ten (10) days after its publication as provided by law.

Adopted and signed this \_\_\_\_ day of \_\_\_\_\_, 2010.

ATTEST:

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## **EXHIBIT A**

**EXHIBIT A**  
**DESCRIPTIONS OF RESTRICTED AND BUFFER ZONES**

The Restricted Zone under City of Bronson, Michigan Ordinance Number # \_\_\_\_\_ shall be that area within the City limits bounded as follows:

Beginning at the northwest corner of the municipal limits of the City of Bronson, thence generally eastward following the northern City limits to a point defined by the northward projection of the centerline of North Lincoln Street, thence southward along the centerline of North Lincoln Street as projected and the centerline of North Lincoln Street to the centerline of Fillmore Street, thence westward along the centerline of Fillmore Street to the centerline of North Matteson Street, thence southward along the centerline of North Matteson Street to the centerline of Union Street, thence westward along the centerline of Union Street to the municipal limits of the City of Bronson, thence northward along the western City limits to the point of beginning, except the Bronson Plating Company property which is bounded by Industrial Avenue on the south, by the extension of Winona Street on the east, and by County Drain 30 on the north (Tax Parcels Nos. (b) (6))

The Buffer Zone under City of Bronson, Michigan Ordinance Number # \_\_\_\_\_ shall be that area within the City limits in each of the following two areas bounded as described:

Area 1

Beginning at the municipal limits of the City of Bronson at a point defined by the northward projection of the centerline of North Lincoln Street, thence eastward following the northern City limits to the northeast corner of the City limits, thence southward along the eastern municipal limits of the City of Bronson to the centerline of Raymond Street, thence westward along the centerline of Raymond Street to the intersection of North Lincoln Street, thence northward along the northward projection of North Lincoln Street to the point of beginning.

Area 2

Beginning at the centerline of Union Street at a point defined by the northern projection of the rear property line of Tax Parcel (b) (6) thence eastward along the centerline of Union Street to the centerline of North Matteson Street, thence northward along the centerline of North Matteson Street to the centerline of Fillmore Street, thence eastward along the centerline of Fillmore Street to the centerline of Winona Street, thence southward along the centerline of Winona Street to the centerline of Fremont Street, thence westward along the centerline of Fremont Street to the centerline of North Matteson Street, thence southward along the centerline of North Matteson Street to the centerline of Franklin Street, thence westward along the centerline of Franklin Street to a point



defined by the southward projection of the rear property line of Tax Parcel No. (b) (6), thence northward along the rear property line of the properties facing along the east side of Shaffmaster Avenue (Tax Parcels Nos. (b) (6) to the point of beginning.

These limits of the Restricted Zone and the Buffer Zone are shown in Exhibit B.

## **EXHIBIT B**

(b) (6)

## **EXHIBIT C**

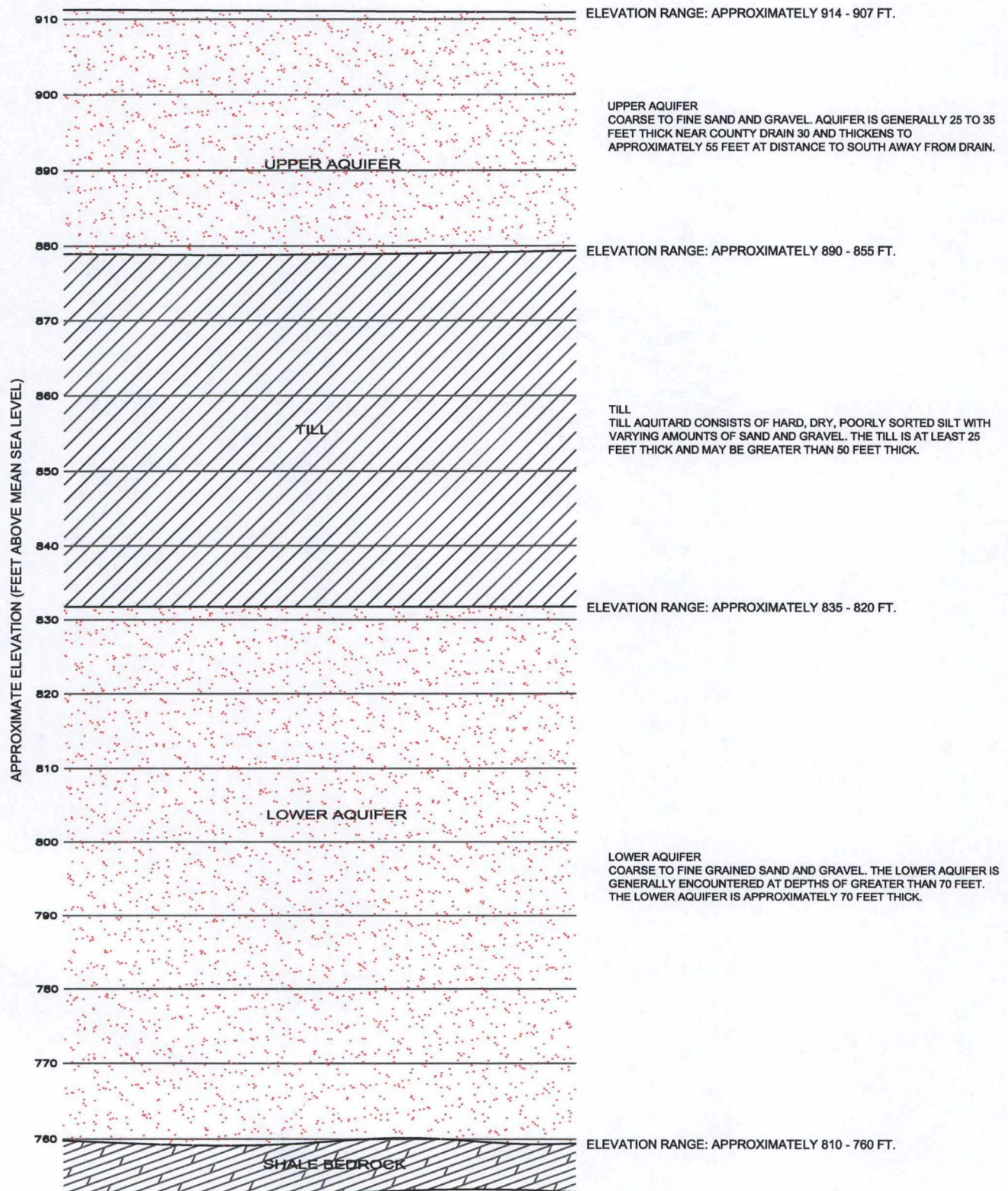


FIGURE ADAPTED FROM ARCADIS OF MICHIGAN, LLC  
AUTOCAD FILE: SITE LAYOUT\_UNCONTROLLED COPY.DWG.  
FILE WAS LAST MODIFIED ON 5/17/2006 4:00 PM.

NORTH BRONSON INDUSTRIAL AREA  
BRONSON, MICHIGAN

### IDEALIZED CROSS SECTION

NOT TO SCALE  
SEPTEMBER 2010

EXHIBIT C

**ATTACHMENT B**  
**CONSENT TO ACCESS FORMS**

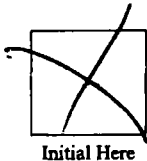
**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

(b) (6)

(b) (6)

\_\_\_\_\_, own the property located at the address shown and have the authority to grant access to it.



I/WE WISH TO CONNECT TO THE CITY OF BRONSON WATER SUPPLY SYSTEM AND ABANDON THE EXISTING WATER WELL AT THIS PROPERTY.

By the signature below, I/we hereby grant to the North Bronson Site Participating Parties Group (being those entities identified in attached Exhibit A) and to the City of Bronson, their contractors, agents, and representatives, permission to enter the property at the address shown above for the purposes of connecting this property to the City of Bronson water supply system and for abandoning the existing water well at this property.

1. Work to Be Done: I understand the work that will be required at the property, and for which I grant access and consent, includes the following:
  - Inspection of interior of premises as needed to assess necessary plumbing connections and requirements for well abandonment.
  - Soil excavation at the property and in the right-of-way in front of property as needed to install a tap connection to the City water main and install the water piping that extends between City main and the house.
  - Removal of shrubs, bushes, and ~~trees~~ where they interfere with needed excavation or pipe installation. *I do not want my tree removed.*
  - Installation of a water meter and piping as needed to connect to the house. The pipe connection will be made as close as practical to the point of connection between the existing well discharge and the interior plumbing.
  - Abandonment of the existing water well by pulling any downhole piping, completely filling the well casing with cement grout, and securing a cover or cap

atop the well riser. The removed well pump and other appurtenances will either be left at the residence or removed for disposal, as directed by the owner.

- Restoration of disturbed lawn, driveway, and other exterior areas of the property. Disturbed areas will be restored to a condition consistent with that which existed prior to the start of work. Removed bushes, shrubs, trees, and other vegetation will be replaced.

2. Cost of the Work: The Work required to connect to the City of Bronson water supply system and abandon the existing water well will be performed at the sole cost and expense of the North Bronson Site Participating Parties Group, and, as the property owner, I/we are not responsible for paying any of these costs.
3. Water Bills: I/we understand that, once connected to City water, I/we (or any Tenants of the property under the lease) will be responsible for paying all bills received from the City of Bronson for water and sewer service.
4. Notification for Access to Work: I/we must be notified at least 48 hours prior to any work conducted at the property. If I/we lease this property to another person, I/we authorize North Bronson Site Participating Parties Group to contact the tenant indicated below to schedule the necessary work.
5. Schedule: Once started, the Work will proceed promptly without unnecessary delays.
6. Confirmation of Ownership: I/we represent that the undersigned are the title owners to the property indicated above and have full authority to enter into this agreement.
7. Review by Attorney: I/we agree that I/we have the right and opportunity to have this agreement reviewed by an outside attorney of my/our choice (at my/our expense) and have either done so or have waived doing so prior to executing this agreement.
8. Entire Agreement: This document sets forth the entire agreement between the North Bronson Site Participating Parties Group and the property owner(s) regarding the connection to City water and the abandonment of the existing water well.

Property Owner(s) Name (signature(s)):

Property Owner(s) Name (printed):

Date:

Phone Number (home):

Phone Number (cell):

Tenant Name (if applicable):

Tenant Phone Number:

(b) (6)



**LEO M. BRAUSCH**  
**ENVIRONMENTAL MANAGEMENT CONSULTANT**

---

(b) (6)  
Gibsonia, PA 15044-9795  
Office: (724) 444-0377  
Cell: (b) (6)  
Fax: (724) 444-0351  
Email: lbrausch@fyi.net

December 15, 2009

(b) (6)  
Bronson, MI 49028

**Re: Connection to City Water**

Dear (b) (6)

In accordance with our telephone discussions last week, the North Bronson Potentially Responsible Parties Group (the Group) and the City of Bronson are willing to work with you to expedite your connection to City water and facilitate sale of your residence at (b) (6) in Bronson. The following is an outline of the steps to be taken by each party to effect this water connection:

1. The City of Bronson will make the tap connection to the water main and run the line to a curb box (street valve) at the sidewalk. The Group will pay the City tap-in fee and purchase the necessary water meter from the City.
2. You will solicit quotes from plumbing contractors (we suggest getting at least two bids) for the connection to the curb box and the interior plumbing needed for the switchover from private well to City water. For your convenience, a list of possible plumbing contractors is attached.
3. You will review the received bids with me before awarding the work to the plumbing contractor.
4. You will retain the plumbing contractor to complete the work.
5. The plumbing contractor will also disconnect the well pump and securely attach a plate or other cover atop the existing well to render it inaccessible.
6. Once the work is completed to your satisfaction and the City completes any required inspections or approvals, you will pay the plumbing contractor. The Group will then reimburse you for the invoiced cost from the plumbing contractor. The Group will

endeavor to forward this payment within 10 days of receipt of the plumbing contractor's invoice.

7. The well will be permanently closed in the spring of 2010 at the same time the Group closes other private wells in Bronson. For this work, the Group will require that the new owner submit a signed "Permission to Enter and Abandon Water Well" form (see attached) and suggest that this task be completed before or at the time of closing.

We trust that this correspondence provides a satisfactory approach to an expedited connection to City water. If acceptable to you, please sign where indicated below and return a signed copy to me. If you have questions, please do not hesitate to contact me.

Respectfully submitted,



Leo M. Brausch  
Project Coordinator

LMB:  
Attachments

ACCEPTED:

(b) (6)

cc (via email):

David O'Rourke, City of Bronson  
NBIA Operable Unit 1 PRP Group Legal Committee  
NBIA Operable Unit 1 PRP Group Technical Committee

**Prospective Contractors  
City Water Connections  
Bronson, Michigan**

1. A. K. Kelley Plumbing  
148 North Matteson Lake Road  
Bronson, MI 49028  
(b) (6)
2. Akers, Inc.  
706 South Angola Road  
Coldwater, MI 49036  
(517) 238-5648
3. R&M Service  
387 East Fenn Road  
Coldwater, MI  
(517) 278-5018
4. All Pro Services  
1008 Weaver Road  
Bronson, MI 49028-9421  
Attn: Matt Hollister  
Phone: (269) 503-0141  
Fax: (517) 858-1075  
Email: [aps.matt@hotmail.com](mailto:aps.matt@hotmail.com)

## PERMISSION TO ENTER AND ABANDON WATER WELL

PROPERTY ADDRESS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

I/We, \_\_\_\_\_, own the property located at the address shown and have the authority to grant access to it.

☐

I/WE WISH TO ABANDON THE EXISTING WATER WELL AT THIS PROPERTY.

Initial  
Here

By the signature below, I/we hereby grant to the North Bronson Site Participating Parties Group (being those entities identified in attached Exhibit A) and to the City of Bronson, their contractors, agents, and representatives, permission to enter the property at the address shown above for the purpose of abandoning the existing water well at this property.

1. Work to Be Done: I understand the work that will be required at the property, and for which I grant access and consent, includes the following:
  - Inspection of interior of premises as needed to assess the requirements for well abandonment.
  - Abandonment of the existing water well by pulling any downhole piping, completely filling the well casing with cement grout, and securing a cover or cap atop the well riser. The removed well pump and other appurtenances will either be left at the residence or removed for disposal, as directed by the owner.
2. Cost of the Work: The Work required to abandon the existing water well will be performed at the sole cost and expense of the North Bronson Site Participating Parties Group, and, as the property owner, I/we are not responsible for paying any of these costs.
3. Water Bills: I/we understand that I/we (or any Tenants of the property under the lease) are responsible for paying all bills received from the City of Bronson for water and sewer service.
4. Notification for Access to Work: I/we must be notified at least 48 hours prior to any work conducted at the property. If I/we lease this property to another person, I/we

authorize North Bronson Site Participating Parties Group to contact the tenant indicated below to schedule the necessary work.

5. Schedule: Once started, the Work will proceed promptly without unnecessary delays.
6. Confirmation of Ownership: I/we represent that the undersigned are the title owners to the property indicated above and have full authority to enter into this agreement.
7. Review by Attorney: I/we agree that I/we have the right and opportunity to have this agreement reviewed by an outside attorney of my/our choice (at my/our expense) and have either done so or have waived doing so prior to executing this agreement.
8. Entire Agreement: This document sets forth the entire agreement between the North Bronson Site Participating Parties Group and the property owner(s) regarding the abandonment of the existing water well.

Property Owner(s) Name (signature(s)): \_\_\_\_\_

Property Owner(s) Name (printed): \_\_\_\_\_

Date: \_\_\_\_\_

Phone Number (home): \_\_\_\_\_

Phone Number (cell): \_\_\_\_\_

Tenant Name (if applicable): \_\_\_\_\_

Tenant Phone Number: \_\_\_\_\_

**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

**(b) (6)**

**(b) (6)**

own the property located at the address  
shown and have the authority to grant access to it.

**(b) (6)**

WE WISH TO CONNECT TO THE CITY OF BRONSON WATER SUPPLY  
SYSTEM AND ABANDON THE EXISTING WATER WELL AT THIS  
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By the signature below, I/we hereby grant to the North Bronson Site Participating Parties Group (being those entities identified in attached Exhibit A) and to the City of Bronson, their contractors, agents, and representatives, permission to enter the property at the address shown above for the purposes of connecting this property to the City of Bronson water supply system and for abandoning the existing water well at this property.

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  - Removal of shrubs, bushes, and trees where they interfere with needed excavation or pipe installation.
  - Installation of a water meter and piping as needed to connect to the house. The pipe connection will be made as close as practical to the point of connection between the existing well discharge and the interior plumbing.
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atop the well riser. The removed well pump and other appurtenances will either be left at the residence or removed for disposal, as directed by the owner.

- Restoration of disturbed lawn, driveway, and other exterior areas of the property. Disturbed areas will be restored to a condition consistent with that which existed prior to the start of work. Removed bushes, shrubs, trees, and other vegetation will be replaced.
2. Cost of the Work: The Work required to connect to the City of Bronson water supply system and abandon the existing water well will be performed at the sole cost and expense of the North Bronson Site Participating Parties Group, and, as the property owner, I/we are not responsible for paying any of these costs.
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Property Owner(s) Name (signature(s)):

Property Owner(s) Name (printed):

Date:

Phone Number (home):

Phone Number (cell):

Tenant Name (if applicable):

Tenant Phone Number:

(b) (6)

**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

(b) (6)

I/We (b) (6) own the property located at the address shown and have the authority to grant access to it.

(b) (6)

I/WE WISH TO CONNECT TO THE CITY OF BRONSON WATER SUPPLY SYSTEM AND ABANDON THE EXISTING WATER WELL AT THIS PROPERTY.

Initial Here

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atop the well riser. The removed well pump and other appurtenances will either be left at the residence or removed for disposal, as directed by the owner.

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Property Owner(s) Name (printed):

Date:

Phone Number (home):

Phone Number (cell):

Tenant Name (if applicable):

Tenant Phone Number:

(b) (6)

NA

NA

**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

(b) (6)

(b) (6)

own the property located at the address  
shown and have the authority to grant access to it.

(b) (6)

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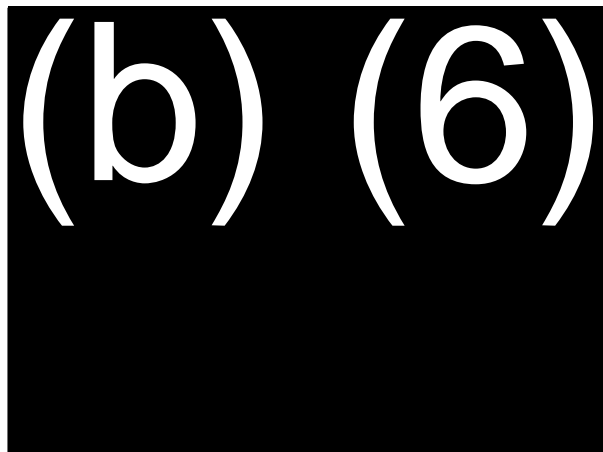
Date:

Phone Number (home):

Phone Number (cell):

Tenant Name (if applicable):

Tenant Phone Number:



**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

(b) (6)

(b) (6)

own the property located at the address

shown and have the authority to grant access to it.

(b) (6)

Initial Here

I/WE WISH TO CONNECT TO THE CITY OF BRONSON WATER SUPPLY SYSTEM AND ABANDON THE EXISTING WATER WELL AT THIS PROPERTY.

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Property Owner(s) Name (signature(s))

Property Owner(s) Name (printed):

Date: 5-15-09

Phone Number (home):

Phone Number (cell):

Tenant Name (if applicable):

Tenant Phone Number:

(b) (6)

**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

(b) (6)

(b) (6)

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Initial Here

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Property Owner(s) Name (signature(s))

Property Owner(s) Name (printed):

Date:

Phone Number (home):

Phone Number (cell):

Tenant Name (if applicable):

Tenant Phone Number:



**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

(b) (6)

(b) (6)

own the property located at the address

(b) (6)

Initial Here

I/WE WISH TO CONNECT TO THE CITY OF BRONSON WATER SUPPLY SYSTEM AND ABANDON THE EXISTING WATER WELL AT THIS PROPERTY.

By the signature below, I/we hereby grant to the North Bronson Site Participating Parties Group (being those entities identified in attached Exhibit A) and to the City of Bronson, their contractors, agents, and representatives, permission to enter the property at the address shown above for the purposes of connecting this property to the City of Bronson water supply system and for abandoning the existing water well at this property.

1. Work to Be Done: I understand the work that will be required at the property, and for which I grant access and consent, includes the following:
  - Inspection of interior of premises as needed to assess necessary plumbing connections and requirements for well abandonment.
  - Soil excavation at the property and in the right-of-way in front of property as needed to install a tap connection to the City water main and install the water piping that extends between City main and the house.
  - Removal of shrubs, bushes, and trees where they interfere with needed excavation or pipe installation.
  - Installation of a water meter and piping as needed to connect to the house. The pipe connection will be made as close as practical to the point of connection between the existing well discharge and the interior plumbing.
  - Abandonment of the existing water well by pulling any downhole piping, completely filling the well casing with cement grout, and securing a cover or cap



atop the well riser. The removed well pump and other appurtenances will either be left at the residence or removed for disposal, as directed by the owner.

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  5. Schedule: Once started, the Work will proceed promptly without unnecessary delays.
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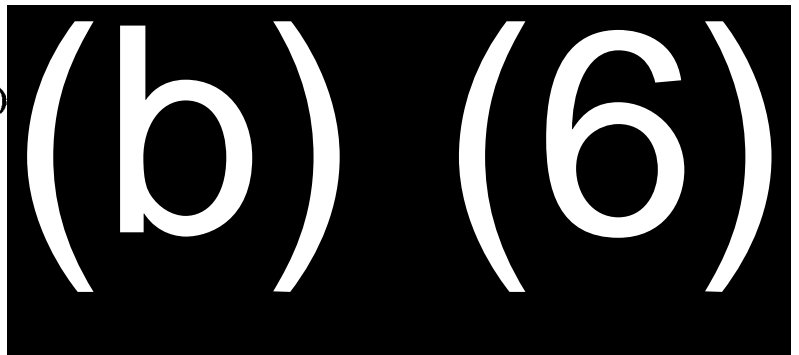
Date:

Phone Number (home):

Phone Number (cell):

Tenant Name (if applicable):

Tenant Phone Number:



**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

(b) (6)

(b) (6)

\_\_\_\_\_, own the property located at the address shown and have the authority to grant access to it.

(b) (6)

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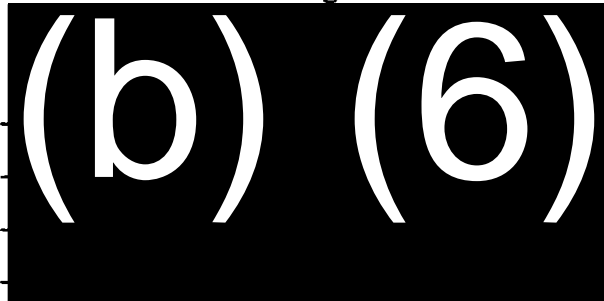
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Phone Number (home):

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Tenant Name (if applicable):

Tenant Phone Number:



**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

(b) (6)

(b) (6)

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(b) (6)

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Phone Number (home):

Phone Number (cell):

Tenant Name (if applicable):

Tenant Phone Number:

(b) (6)

# BRAUSCH ENVIRONMENTAL, LLC

---

(b) (6)  
Gibsonia, PA 15044-9795  
Office (724) 444-0377  
Cell (b) (6)  
Fax: (724) 444-0351  
Email: lbrausch@fyi.net

May 2, 2010

(b) (6)

Bronson, MI 49028

**Re: Connection to City Water**

Dear (b) (6)

In accordance with our telephone discussion on Friday, April 30, 2010, the North Bronson Potentially Responsible Parties Group (the Group) and the City of Bronson are willing to work with you to ensure you are satisfied with the City water connection at (b) (6) (b) (6) d (the Property). To that end, the following is an outline of the steps to be taken by each party to effect this water connection:

1. The City of Bronson has made the tap connection to the water main and installed the water valve at the Property. The Group will pay the City tap-in fee and purchase the necessary water meter from the City.
2. You will self-perform and/or subcontract with a qualified contractor to install the exterior piping and interior plumbing needed for the switchover from private well to City water. All work will comply with City and other applicable plumbing codes.
3. As part of the scope of this work, you or your subcontractor will disconnect the well pump and remove any appurtenances from the well.
4. You will document your costs for the work that is self-performed and/or subcontracted.
5. Once the work is completed to your satisfaction and the City completes any required inspections or approvals, you will submit an invoice to the Group (to my attention). The Group will reimburse you for the cost of the work, up to a maximum of \$2,700. The Group will endeavor to forward this payment within 15 days of receipt of the invoice.

6. You will provide access to the Group contractor later this spring to permanently close the well at the Property in accordance with the "Permission to Enter and Connect to City Water Supply System" signed by Patricia Wolff-Wagner on June 15, 2009.

We trust that this correspondence provides a satisfactory resolution of your concerns regarding the connection of the Property to City water. If acceptable to you, please sign where indicated below and return a signed copy to me. By your signature, you represent that this arrangement is acceptable to all three of the owners of the Property.

If you have questions, please do not hesitate to contact me.

Respectfully submitted,



Leo M. Brausch  
Project Coordinator

LMB:

cc (via email):

David O'Rourke, City of Bronson  
NBIA Operable Unit 1 PRP Group Legal Committee  
NBIA Operable Unit 1 PRP Group Technical Committee  
Clifford S. Yantz, O'Brien & Gere, Inc.

ACCEPTED  
(b) (6)

**PERMISSION TO ENTER AND CONNECT  
TO CITY WATER SUPPLY SYSTEM**

PROPERTY ADDRESS:

(b) (6)

(b) (6)

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Phone Number (home):

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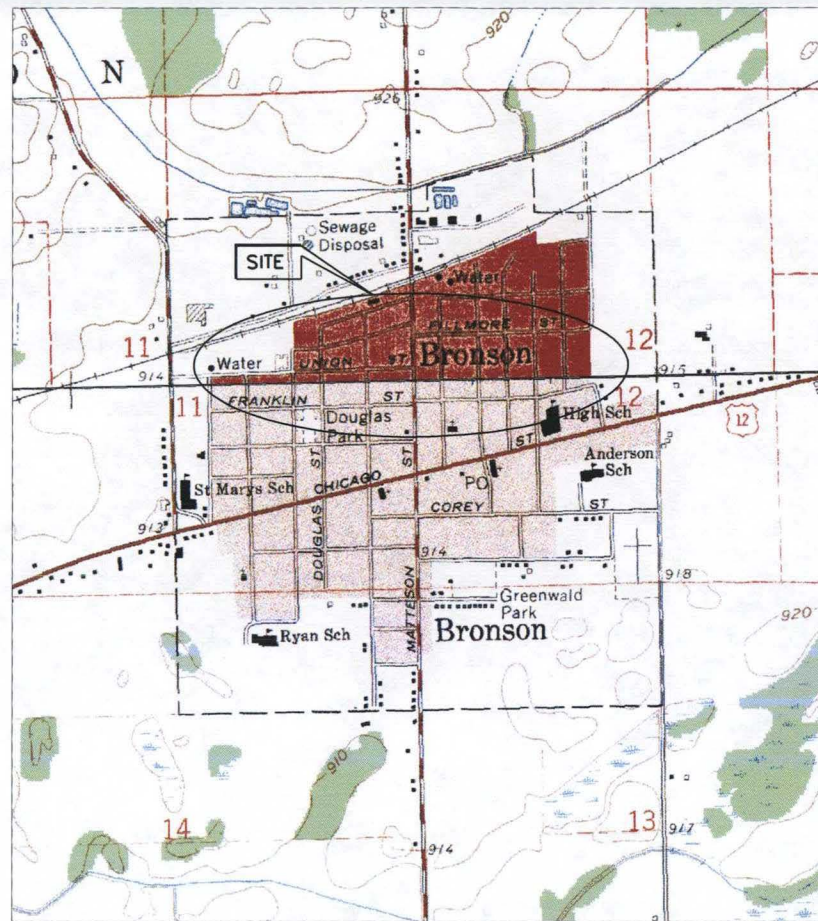
Tenant Name (if applicable):

Tenant Phone Number:

(b) (6)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ATTACHMENT C**  
**BID PACKAGE FOR CITY WATER CONNECTIONS**  
**DESIGN DRAWINGS AND SPECIFICATIONS**



SITE LOCATION MAP  
NOT TO SCALE

## CONTRACT DRAWINGS

# POTABLE WATER SERVICE CONNECTION PROJECT

**NORTH BRONSON INDUSTRIAL AREA OPERABLE UNIT #1 PRP GROUP  
BRONSON, MICHIGAN**

**AUGUST 2009**



**O'BRIEN & GERE**

MICHIGAN  
37000 GRAND RIVER AVE  
SUITE 260  
FARMINGTON HILLS, MI 48335  
PHONE: 248-477-5701

### INDEX TO DRAWINGS

TITLE SHEET  
C-1-SITE PLAN  
C-2-DETAILS I  
C-3-DETAILS II

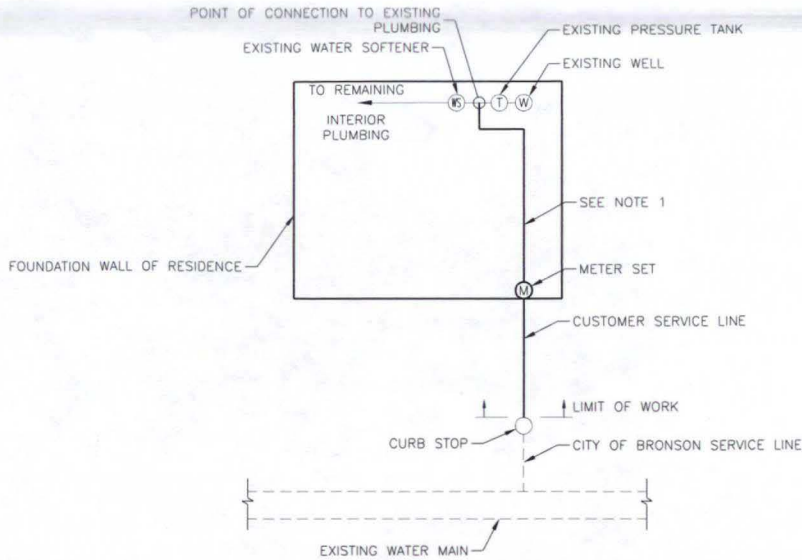
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PERSON UNLESS ACTING UNDER THE  
DIRECTION OF A LICENSED PROFESSIONAL  
ENGINEER TO ALTER THIS DOCUMENT.

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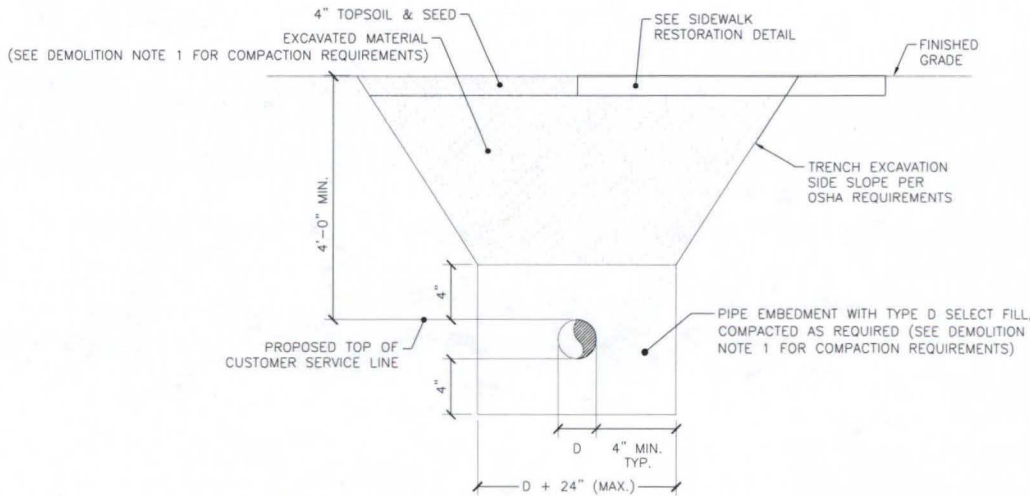


TYPICAL WATER SERVICE CONNECTION SCHEMATIC PLAN

NOT TO SCALE

DETAIL NOTES:

1. SUPPORT PIPE AT 5' SPACING AND AT BENDS. INSTALL PIPING IN STRAIGHT LINES.
2. IF SIDEWALK IS PRESENT, SERVICE BOX WILL BE PLACED ON ROAD SIDE OF SIDEWALK. CONTRACTOR IS RESPONSIBLE FOR PRESERVING OR REPLACING SIDEWALK.



TYPICAL UTILITY TRENCH DETAIL

NOT TO SCALE

DETAIL NOTES:

1. TYPE D SELECT FILL: WASHED COARSE SAND HAVING THE FOLLOWING GRADATION BY WEIGHT:

% PASSING	SIEVE
100	3/8-INCH
95-100	NO. 4
80-100	NO. 8
50-85	NO. 16
25-60	NO. 30
10-30	NO. 50
2-10	NO. 100

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IN CHARGE OF NORTON S. FOGEL  
DESIGNED BY LAT CHECKED BY BJP/MER  
DRAWN BY LAT

NOT TO SCALE

NO.	DATE	REVISION	INIT.
A	07/24/09	FOR REVIEW, PRELIMINARY DESIGN DRAWINGS	LAT



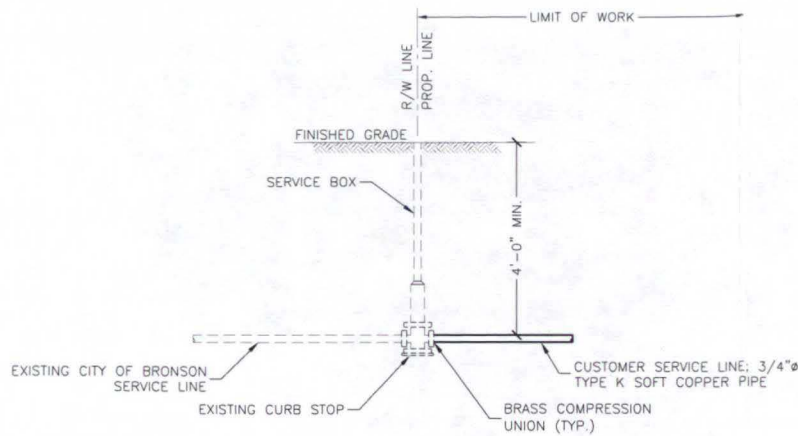
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NORTH BRONSON INDUSTRIAL AREA  
OPERABLE UNIT #1 PRP GROUP  
BRONSON, MICHIGAN  
POTABLE WATER SERVICE CONNECTION PROJECT

CIVIL  
DETAILS I

FILE NO.  
12716.41845.002  
DATE  
AUGUST 2009

C-2

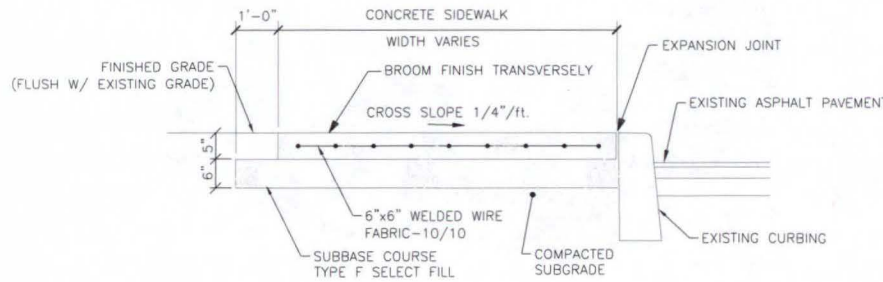


WATER SERVICE INSTALLATION

NOT TO SCALE

DETAIL NOTES:

1. CURB STOP SHALL BE FURNISHED AND INSTALLED BY THE CITY OF BRONSON. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING OF CUSTOMER SERVICE LINE, ETC.
2. CURB BOX SHALL BE INSTALLED ADJACENT TO PROPERTY LINE, ON STREET SIDE OF RIGHT-OF-WAY.
3. PLUMB NEW PIPING TO EXISTING WATER SUPPLY PIPING INSIDE HOME.
4. ALL BENDS IN TYPE K COPPER PIPE SHALL BE MADE USING AN APPROPRIATE PIPE BENDING TOOL. THERE SHALL BE FREE FROM CRIMPS, JOINTS, AND COUPLINGS.
5. SEPARATION DISTANCE FROM WATER LINE AND SEWER UTILITIES (HORIZONTAL AND VERTICAL) IS 10 FEET.



TYPICAL SIDEWALK DETAIL

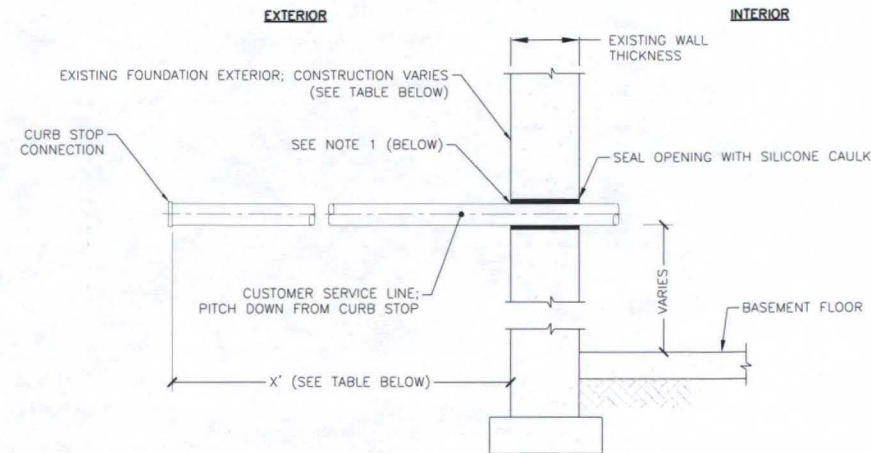
NOT TO SCALE

DETAIL NOTES:

1. CONCRETE SHALL BE 4500 PSI AIR ENTRAINED CONCRETE.
2. FULL DEPTH EXPANSION JOINTS SHALL BE PROVIDED EVERY 25', MARKED JOINTS SHALL BE AT 5' SPACING AND FORMED WITH A GROOVING TOOL.
3. ALL EXPANSION JOINTS SHALL BE FILLED WITH BITUMINOUS FILLER MATERIAL.
4. IN LAWN AREAS, GROUND SURFACE TO BE FLUSH WITH TOP OF CURB.
5. TYPE F SELECT FILL ("RUN-OF-CRUSHER STONE"): RUN-OF-CRUSHER HARD DURABLE LIMESTONE OR APPROVED EQUAL HAVING THE FOLLOWING GRADATION BY WEIGHT:

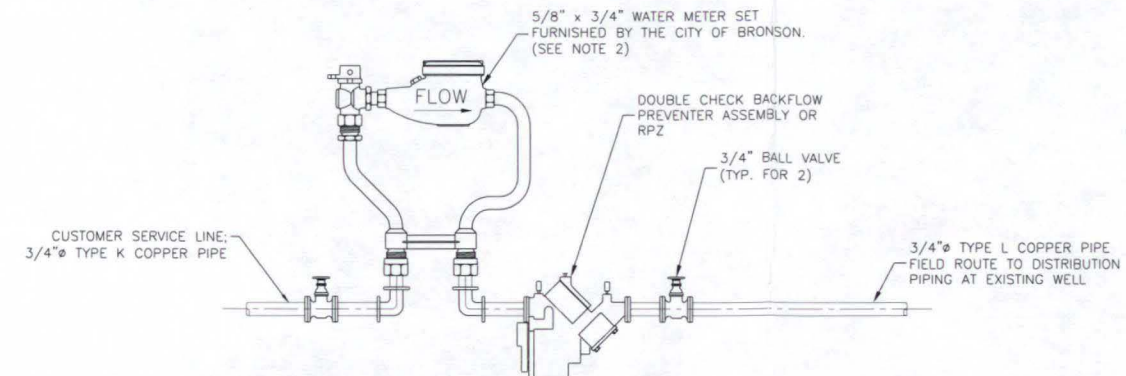
% PASSING	SIEVE
100	1 1/2-INCH
95-100	1
65-80	1/2
40-60	1/4
0-10	#200 SIEVE





TYPICAL WALL PENETRATION & SERVICE ENTRANCE

- DETAIL NOTE: NOT TO SCALE
1. FOR CONCRETE CONSTRUCTION, CORE DRILL OPENING IN WALL OF EXISTING STRUCTURE. FOR FIELD STONE CONSTRUCTION, TAMP OPENING IN WALL OF EXISTING STRUCTURE.
  2. COORDINATE WITH OWNER FOR LOCATION OF WALL PENETRATION.

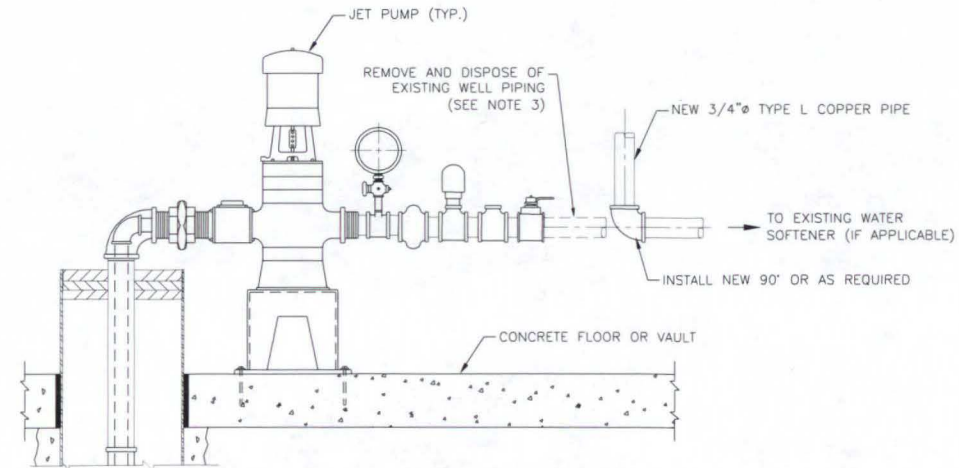


TYPICAL METER SETTING

- DETAIL NOTE: NOT TO SCALE
1. METER LOCATION SHALL BE SET HORIZONTALLY WITH CENTER LINE NOT LESS THAN 14" FROM WALL OR ANY OTHER OBJECT, AND NOT MORE THAN 24" ABOVE FLOOR.
  2. CONTRACTOR IS RESPONSIBLE FOR INSTALLING METER SETTING. METER SET SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. THE CITY OF BRONSON WILL INSTALL METER.
  3. APPROVALS FOR BACKFLOW ASSEMBLIES MUST HAVE SEAL APPROVAL FROM THE AMERICAN SOCIETY OF SANITATION ENGINEERS.

HOMEOWNER SERVICE INFORMATION		
ADDRESS	"X" (IN FEET)	FOUNDATION TYPE
325 NORTH LINCOLN	36	CONCRETE - POURED OR BLOCK
325 WINONA STREET	64	FIELD STONE
419 FILLMORE STREET	19	CONCRETE - POURED
326 WASHINGTON STREET	24	CONCRETE - BLOCK
418 FRANKLIN STREET	44	CONCRETE - BLOCK
426 FRANKLIN STREET	33	CONCRETE - POURED OR BLOCK
115 UNION STREET	29	CONCRETE - POURED OR BLOCK
425 UNION STREET	31	CONCRETE - BLOCK
425 SHAFFMASTER BLVD.	30	TEXTURED STONE ON CONCRETE

\* REPORTED LENGTH IS APPROXIMATE LENGTH FROM CURB STOP TO BASEMENT WALL. ADDITIONAL LENGTH IS REQUIRED TO ROUTE TO POINT OF CONNECTION TO EXISTING PLUMBING.



WELL HEAD ABANDONMENT

- DETAIL NOTE: NOT TO SCALE
1. ABANDON EXISTING PIPING FROM WELL. NO INTERCONNECTIONS BETWEEN WELL SYSTEM AND NEW SERVICE LINE.
  2. WELL PUMP AND OTHER APPARATUSES ARE THE PROPERTY OF HOMEOWNER. CONTRACTOR TO DISPOSE OF THIS EQUIPMENT ONLY AS DIRECTED BY THE HOMEOWNER IN WRITING.
  3. HOMEOWNERS MAY CURRENTLY UTILIZE AN EXPANSION TANK. IF EXPANSION TANK IS PRESENT, DISCONNECT PIPING AFTER EXPANSION TANK, BUT BEFORE WATER SOFTENER.

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NORTH BRONSON INDUSTRIAL AREA  
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POTABLE WATER SERVICE CONNECTION PROJECT

CIVIL  
DETAILS II

FILE NO.  
12716.41845.002  
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AUGUST 2009

C-3

**ATTACHMENT D**  
**WELL ABANDONMENT LOGS**

**10 PAGES**  
**REMOVED**  
**(b) (6)**